REMARKS

The present Amendment amends claims 1-10. Therefore, the present application has pending claims 1-10.

Amendments were made to the specification to correct minor errors grammatical and editorial in nature discovered upon review. Entry of these amendments is respectfully requested.

Claims 1-10 stand rejected under 35 USC §103(a) as being unpatentable over Sandberg (U.S. Patent No. 5,522,045) in view of Rodman (U.S. Patent No. 4,587,610). This rejection is traversed for the following reasons. Applicants submit that the features of the present invention as now more clearly recited in claims 1-10 are not taught or suggested by Sandberg or Rodman whether taken individually or in combination with each other as suggested by the Examiner. Therefore, Applicants respectfully request the Examiner to reconsider and withdraw this rejection.

Amendments were made to the claims so as to more clearly describe features of the present invention not taught or suggested by the references of record. Particularly, amendments were made to claims 1-10 so as to more clearly recite that the present invention is directed to a multiprocessor system having a plurality of nodes wherein each node includes at least one CPU, at least one translation lookaside buffer (TLB) each associated with a respective CPU and a local memory forming a part of a main memory space of the multiprocessor system and an inter-node network for connecting each of the nodes to each other.

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Each node according o the present invention includes a map table having entries corresponding to respective physical pages of the local memory and stores correspondence between each page number of the physical pages and a virtual page number actually mapped to the physical page number, transaction generating means for generating, when a result of a address translation using the TLB indicates that a memory access request from a CPU is to be directed to a local main memory of another mode, a network transaction corresponding to the memory access request which includes a physical address to be accessed obtained from the result of the address transaction using the TLB and a virtual page number designated in the memory access request from the CPU and transaction receiving means for receiving network transactions transferred from other nodes.

Each of the nodes further includes according to the present invention checking means for checking for coincidence between a first virtual page number which included in a received network transaction and a second virtual page number obtained through reference to the map table using a physical address included in the received memory access transaction and outputting a notice indicating whether the first and second virtual page numbers are coincidence, main memory access means for executing an access to the local main memory corresponding to the received network transaction when the notice indicates the first and second virtual page numbers are coincidence.

According to the present invention, when the notice indicates that the first and second virtual page numbers are not coincidence, an occurrence of an error is informed to the CPU of the node or the CPU of another node if the received network transaction is from the another node.

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The above described features of the present invention now more clearly recited in the claims are not taught or suggested by any of the references of record particularly Sandberg and Rodman whether taken individually or in combination with each other.

Sandberg teaches a general purpose inter-processor communication system and method which is implemented through a distributed shared memory network connecting a plurality of processors, computers, multiprocessors and electronic and optical devices. Sandberg specifically teaches a multiprocessor system having a plurality of nodes, wherein node changes a logical address into a physical address, wherein the physical addresses can be accessed by way of network when the physical address is located at a distant node. However, there is no teaching or suggestion in Sandberg of apparatus which allows the mapping of a logical address to a physical address to change and to give notice when such change may have occurred as in the present invention. As described above according to the present invention, when a change has occurred in the mapping between a logical address and a physical address such change is notified to the processor of a node or the processor of another node so that upon receipt of the notice the information used to map the relationship between the logical address and the physical address can be updated. Such features are clearly not taught or suggested nor are they possible in Sandberg since there is no teaching or suggestion of such apparatus which provides a notice when the mapping information has been changed as in the present invention.

Thus, Sandberg fails to teach or suggest <u>checking means for checking</u> <u>for coincidence between a first virtual page number which is included in a</u>

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received network transaction and a second virtual page number obtained through reference to the map table using a physical address included in the received memory access transaction and outputting a notice indicating whether the first and second virtual page numbers are coincidence as recited in the claims.

Further, Sandberg fails to teach or suggest main memory access means for executing an access to the local main memory corresponding to the received network transaction when the notice indicates the first and second virtual page numbers are coincident as recited in the claims.

Still further, Sandberg fails to teach or suggest that when the notice indicates the first and second virtual page numbers are not coincident, an occurrence of an error is informed to the CPU or the CPU of another node if the received network transaction is from another node as recited in the claims.

Therefore, as is clear from the above, the features of the present invention as now more clearly recited in the claims are not taught or suggested by Sandberg.

The above described deficiencies of Sandberg are not taught or suggested by any of the other references of record. Particularly, these deficiencies of Sandberg relative to the features of the present invention as now more clearly recited in the claims are not supplied by Rodman. Therefore, combining the teachings of Sandberg and Rodman in the manner suggested by the Examiner in the Office Action still fails to teach or suggest the features of the present invention as now more clearly recited in the claims.

Rodman is merely relied upon by the Examiner for an alleged teaching of an address translation system which initially polls the TLB for a translation

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of the virtual address to a physical address and if the translation is found the translation is used to verify cache data. This alleged teaching of Rodman does not supply the above described deficiencies of Sandberg relative to the features of the present invention as now more clearly recited in the claims.

Particularly, Rodman fails to teach or suggest <u>checking means for checking for coincidence between a first virtual page number which is included in a received network transaction and a second virtual page number obtained through reference to the map table using a physical address included in the received memory access transaction and outputting a notice indicated whether the first and second virtual page numbers are coincident</u> as recited in the claims.

Further, Rodman fails to teach or suggest <u>main memory access means for executing an access to the local main memory corresponding to the received network transaction when the notice indicates the first and second virtual page numbers are coincident</u> as recited in the claims.

Still further, Rodman fails to teach or suggest <u>that when the notice indicates the first and second virtual page numbers are not coincident, an occurrence of an error is informed to the CPU or the CPU of another node if the received network transaction is from the another node</u> as recited in the claims.

Therefore, as is quite clear from the above, since both Sandberg and Rodman suffer from the same deficiencies relative to the features of the present invention as now more clearly recited in the claim, combining the teachings of Sandberg and Rodman in the manner suggested by the Examiner does not render obvious the features of the present invention as

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now more clearly recited in the claims. Accordingly, reconsideration and withdrawal of the 35 USC §103(a) rejection of claims 1-10 as being unpatentable over Sandberg in view of Rodman is respectfully requested.

The remaining references of record have been studied. Applicants submit that they do not supply any of the deficiencies noted above with respect to the references utilized in the rejection of claims 1-10.

In view of the foregoing amendments and remarks, applicants submit that claims 1-10 are in condition for allowance. Accordingly, early allowance of claims 1-10 is respectfully requested.

To the extent necessary, the applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C., Deposit Account No. 50-1417 (501.37476CX1).

Respectfully submitted,

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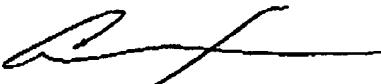
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